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TABLE OF CONTENTS

	Page
A Chemists' Catalog? A Symposium	45
Science in Retail Merchandising. Ellery H. Harvey	59
The Need for Licensing. Frederick Kenney	69
By-products	72
Our Authors	74
Institute Notes	75

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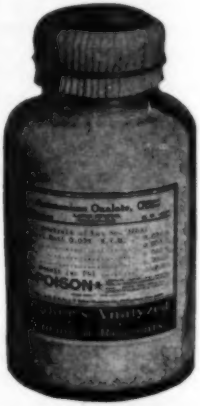

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A Chemists' Catalog?

What twenty-eight chemical executives think about the proposed professional directory. Conflicting testimony. Are present methods adequate? Some suggestions.

THE following comments have been received on the editorial, "Chemists' Catalog Company," which appeared in the December issue of THE CHEMIST. A majority favor the suggestion contained in the editorial; and one or two other executives think such a professional index would be a good thing if certain objections can be overcome.

Chemical executives disagree markedly as to present employment conditions. One chemist feels that "no industrial concern that wants a chemist does not know where to find the man it wants." The research director of a very large industrial concern reports, however, that his company is unable to find satisfactory experienced technologists through present existing employment channels and has decided to take nothing but young men just out of the university.

There is also a wide difference of opinion as to the possible attitude of employers. One man says, "I have found that in nearly every case a legitimate employer will have no objection to his employees bettering themselves." Others feel that the chief weakness of the whole scheme lies in the fact that employers would object to the listing of their chemists.

We shall be very glad for further comments or suggestions. An article by D. H. Killeffer, manager of the employment bureau of The Chemists' Club, will appear in an early issue.

Yes

Arthur J. Norton, chemical director, General Plastics:

While I am not a member of the Institute of Chemists, I should like to say that I am whole-heartedly in favor of your suggestion of a professional directory.

Such a directory would help employers to select men for particular positions.

I. M. Colbeth, director of research, Baker Castor Oil Company:

The suggestion of a Chemists' Catalog is certainly a vital one, and I believe deserves special consideration at this time. Personally, I would welcome a publication such as is described, providing there appeared opposite the name of each man information in regard to his education, experience, and social qualifications.

I think it is a capital idea.

W. S. Fielding, personnel department, General Electric Company:

A classified catalog of chemists appears to us to be a very worthwhile idea. I am assuming that in regard to the employment part of this classification, you would be in a position to supply interested parties with full information regarding any one listed in your catalog. Presumably you would not carry all this information in your files but would be in a position to secure it upon request. It would seem to us that you would be in a position to do this without jeopardizing the interests of any of the men listed in your catalog.

From our experience, the best aid given us by various employment agencies comes from their supplying us with frank comments regarding the accomplishments and ability of the prospect. We have sometimes felt that some of the recommendations which we received were worthless because of their vagueness. If you were in a position to supplement whatever data you obtained from other sources with an appraisal of your own, I believe you would be in a position to supply an excellent service both to employers and to chemical men.

Norman A. Shepard, F.A.I.C., director of chemical research, Firestone Tire and Rubber Company:

I believe there is a great deal of truth in the statement that the chemical profession is not well organized to handle its employment problems. However, I do feel and know that we are in general in a better position in this respect than physicists, for example, and men in most of the branches of engineering. Through the Bureau of Employment of The Chemists' Club, and the *News Edition* of the American Chemical Society, the unemployed chemist has places to register which, in normal times at least, I believe are usually very helpful in securing new positions.

The proposal to list chemists in a Chemists' Catalog would be a distinct step forward, and I am sure that such a catalog would be used to a great extent by employers. As a step toward expanding the activities of the Institute of Chemists and making it of greater help to its members, such a listing would be very valuable. I happen

to know of a case of a former member of the Institute who holds the Ph.D. degree from Harvard, who resigned because he felt that the Institute was doing next to nothing in assisting its unemployed members. This particular man was out of employment for nearly six months, and he felt that the office of the Institute contributed absolutely nothing toward his reemployment.

I am sure employers of chemists would use such a list, although with our present limited membership I am afraid they would be often disappointed through not finding a listing which fitted their requirements. I am inclined to believe, however, that such an organized list would lead to enlarged membership and would foster a very healthy growth of the Institute.

Of course, it is true that the majority of the large organizations look to the universities in seeking for technologists. It has been our experience that we obtain our most promising material in this manner. We rarely are in the market for experienced technologists, preferring rather to train our own men. I will agree that this is in part due to the fact which you have emphasized: that we do not know where to look for experienced men. When we have gone out in the past for trained men, we have invariably contacted only with the "floaters" or those who had been thrown out of work through inefficiency or personal deficiencies. The results have therefore been disappointing, and we have more and more placed our confidence in young men direct from the universities.

There is one other point worth mentioning, and that is, that in most industries there is a distinct policy against "stealing" men from competitors. This does work a distinct hardship on promising young chemists who have in their own organizations no immediate prospect of deserved advancement. Your scheme could certainly do such men no harm, and would avoid the stigma which attaches in the mind of the employer to an employee who lists himself with any of the present employment aids.

Such a catalog as you propose should be very complete. We are now forced to use the list of the members of the American Chemical Society. I have pointed out to Dr. Parsons the desirability of giving further information, such as, for example, degrees held by the members. His reply was that, while it might be desirable, and while it had been considered, he did not believe that the value warranted the extra work and expense of putting out this list.

I have gone to this great length in discussing this matter both in its pros and cons because I believe it has considerable merit. The

editorial itself I think is a little exaggerated and could be softened somewhat, without detriment to its effectiveness. I have little sympathy with the "virtual slavery" statement, nor do I like the inference that the *News Edition* is not doing effective work.

George Schneider, F.A.I.C., technical assistant to the president, Celanese Corporation of America:

I would be very glad to use a professional directory of the type suggested for the selection of chemists for our organization, if such a directory were available.

I hope the idea will materialize.

James Brown, F.A.I.C., chief chemist, McCoy's Laboratories, Inc., Dutchess Bleachery:

I must say that I consider this in prospect probably the best thing that the Institute has thus far considered.

I do not like to say much about myself, but I can best state what I mean by referring to my own experience. After all, I feel that the personal and professional side are closely related. The American Institute of Chemists represents the professional side.

Of the numerous positions I have held the first came from my alma mater, another one came through a teaching agency, and all the other positions (and I think I might say most advantages in general) have come through personal contacts.

I know that a great many men are so located or the nature of their work is such that their personal contacts are limited. A man who has personal contacts is often able to advertise himself without appearing to do so or without intending to do so. Chance for advancement to such a man often comes as a gratuitous offer from the prospective new employer. The chemist himself does not have to seek a new opening. I think too that some men purposely and systematically seek positions of responsibility, with self-advertisement as their primary object. To other men positions of responsibility come largely as a result of personal and business growth. Such men may very well carry responsibility when it comes their way or is put up to them, but they do not always seek it. They are perhaps so interested in the scientific side of their work that their ego does not have the chance to which it is entitled.

I may appear to be putting up to the Institute things that a man should take care of himself. I feel, however, that these things, properly organized, are matters in which the Institute may well be interested, and through which it may be able to help men.

Charles Barban, F.A.I.C., consulting chemist:

I believe such a listing would be advantageous to the professional chemists and to the entire chemical and allied industries.

From time to time I receive requests from clients to recommend a chemist to them; and I have not found it an easy task to select an individual whom I could wholeheartedly recommend. A catalog such as is proposed would certainly go a long way in eliminating this kind of dilemma.

May I, however, make this suggestion? The proposed catalog would be of limited advantage or practical value, unless it received wide distribution, and were placed in the hands of responsible executives in all industries where the chemist has, or should have, his proper place.

Leo Freundlich, F.A.I.C., chief chemist, Hooton Chocolate Company:

A complete Chemists' Catalog is hardly feasible. It may involve dangers and complications for the organization which issues it.

A catalog including only the members of The American Institute of Chemists is feasible, and is in my opinion an experiment worth trying. No doubt it would serve as a stimulant for increased membership.

The catalog would be of great assistance to the employer looking for a highly specialized man, especially in fields not crowded with chemists. It often is difficult to him to get hold of or even know of such a man. When I asked an employer of specialists for his opinion about the proposed catalog, he said, "Go to it." He would certainly use it.

I can see, however, one great danger for the profession at large: the employer may decide to go "shopping." Unfortunately there are many chemists who under-rate the value of their services; and they, with the help of the catalog, might be quite harmful to those who demand and receive a decent salary or compensation.

To decrease this danger, a chemist to be listed in the catalog might be pledged to the following conditions in case of solicitation for his services:

1. To inquire whether he is to replace a chemist, and if so to request information about the salary of this chemist. (This is fair. Most employers want to know how much the chemist earned previously.)

2. Not to accept the position offered to him at a lower salary, unless inferior qualifications justify his doing so.

3. To communicate with the chemist to be replaced, if he is listed in the catalog, before accepting the position offered to him.

Charles N. Frey, chemical director, the Fleischmann Laboratories:

We believe, that a chemist should have at least a B.S. degree, or in lieu thereof, suitable training and experience. A definite place for advertising men who are well selected and whose qualifications are given special rating would be helpful. Merely saying that a man has a Ph.D. is of no great value, unless other qualities are present. Has the man a real ability to produce, to work with others? Is there a special designation which we can give a man of the highest caliber?

Donald B. Keyes, F.A.I.C., professor of industrial chemistry, University of Illinois:

I am very favorable to the suggestion. It seems to me that a classified register such as you suggest, providing it is fairly complete (for example, containing the names of twenty thousand chemists), will be a very useful book to a great many people.

Of course, under each name and address there should be a brief description of the person's activities.

I realize that this is a costly undertaking; but if it can be done, I am sure that there would be a great many people, including myself and many of my friends, who would be glad to purchase copies.

Albert H. Grimshaw, F.A.I.C., associate professor of textile chemistry and dyeing, North Carolina State College:

It seems to me that there are some points in favor of a Chemists' Catalog, providing it contains enough data concerning the chemists whom it lists.

You might be able to start such a catalog by using data furnished you by the members of the A.I.C. in which they gave the following information in regard to themselves: name of schools, name and amount of time spent on subjects studied, extra research work, degrees, etc.; length of time in practical work and somewhat detailed description of types of work performed.

If such a catalog proved its value, you could then expand it to include others who did not happen to be members but who wished to be included in the list.

Benjamin Levitt, F.A.I.C., chief chemist, Charles W. Young and Company:

It may prove to be a suitable means for advertising our professional abilities in a way that cannot be done individually. However, the catalog and its usefulness would have to be made known generally to employers.

On the other hand, it might be used by certain employers to get in touch with chemists to replace men in their employ, at lower salaries. Of course, I realize that where there is a will to do this, employers can avail themselves of the constant stream of unemployed who are applying for placement and who are a source of worry to those now employed.

In all, I believe that a more complete directory of chemists than is now available can be helpful in many ways.

Foster D. Snell, F.A.I.C., president, Foster D. Snell, Inc.:

We believe that a catalog of chemists such as you suggest would fulfill a very useful function. We would use it in looking for men with special experience for specific types of research projects.

J. A. Yates, F.A.I.C., head of the department of chemical and physical sciences, Kansas State Teachers' College:

The proposed Chemists' Catalog is a good idea, one that should interest executives who are looking for chemists for their particular needs. An executive could make a selection of three or four names, make such investigations as he desired, and be spared the bother of a lot of applicants whom he could not employ or did not desire. Only the man employed would know of the investigation.

Such a publication would be in line with the publications of other professional societies and would fill the same place for the professional chemist that such books fill for the other professions.

Great care must be exercised to make the information contained in a publication of this nature rigidly accurate and the names of the persons contained therein absolutely reliable and trustworthy in every way.

Chemists should welcome such a publication because of the honor which it would give to those who found a place therein. Such a publication would stimulate the younger men and women to greater effort to be worthy of a place in the professional catalog, which would be a real asset to a chemist. A well-prepared, reliable publication of this kind would be a forward step for chemists and a help professionally.

The cost of such a publication would be large. Nevertheless, I am of the opinion it would be money well invested. Libraries, as

well as chemists, would be interested in purchasing a book of this kind, as they do "American Men of Science" and other similar works.

The American Institute of Chemists is an ideal organization to promote this publication, and I believe it to be wise to make plans for carrying this idea into effect.

Paul A. Thomasset, F.A.I.C., chief chemist, Ansbacher-Siegle Corporation:

Your proposal regarding the issuance of a professional directory for chemists is very interesting. A few objections occur to me, but they do not, I believe, overweigh the advantages.

Such a directory would actually be used by an employer looking for a chemist—though the majority of firms wanting to employ a man with certain qualifications would hesitate to use the directory as a method of approach to a man already employed in a similar capacity. This might result in the directory being of value only to the unemployed and also to the less scrupulous firms to the detriment of others.

Even though restricted in value in my mind by the above objection, I want to state that I would naturally turn to such a directory when needed. Existing methods of obtaining the right man are far from perfect.

One thing which I think might help is a campaign to persuade all employers to advise immediately a committee of the Institute of any open position. This could be given prompt, wide, and frequent publication, and the cost covered by a small subscription fee.

Albert Darbey, A.A.I.C., chief chemist, Esmond Mills:

I think a Chemists' Catalog would be an excellent thing—if issued by the A.I.C.

Something of this sort would be better than a licensing arrangement—since therein would be listed those chemists who have the approval of the A.I.C.

R. F. Revson, F.A.I.C., manufacturing chemist:

In my opinion a Chemists' Catalog would fill a long empty niche. In my experience I have often found that certain chemists had experiences along lines I never suspected. Sometimes this lack of knowledge has been to our mutual disadvantage.

It ought likewise to be of great assistance to the chemist in relocating himself, and would provide industry with a means of finding the man it seeks.

I sincerely trust that the catalog may become a reality.

Paul P. Zugg, Celluloid Corporation:

We feel that this plan from a personnel department standpoint is very commendable, and we certainly shall have recourse to your catalog. It offers a form of service that was always desirable but never available, and I think it should work out to the mutual satisfaction of both employer and employee.

The greatest difficulty usually in hiring chemists is to develop the occupational picture in order to get a good perspective of the qualification detail; and your service should certainly render much of the preliminary difficulties unnecessary.

May we state that we heartily endorse your plan.

No

Allan F. Odell, F.A.I.C., director of the chemical department, Du Pont Viscoloid Company:

I do not believe that such a system would have any practical value to our company. This is largely because we have a very complete personnel section at the present time which takes care of our wants in this direction; and I believe that most of our personnel work is done by direct contact rather than through consultation of a directory or through recommendations alone.

It is quite possible that another company doing business after a different fashion would find such a scheme quite helpful.

S. R. Church, F.A.I.C., consulting chemist:

I don't believe that a catalog of chemists could be made sufficiently comprehensive and fair to be helpful to the kind of chemist who is most in need of helpful publicity. Chemists are like other human beings, excepting that an unusually large percentage of them are somewhat shy or too modest. On the other hand we number in our ranks those who are quite self-confident and assertive. The latter group, although not necessarily the most competent, would undoubtedly be the chief gainers by your catalog plan. I think of no way for the information about a man's ability to be obtained other than by his own statement.

The best way for a chemist to make himself known is by attending meetings, mixing with his fellows. When we need a man for a job, we think not of names but of people.

W. F. Esmond, director of laboratories, United States Testing Company:

We would have no interest in that type of thing, since we have almost no turn-over in our staff. As a rule we know beforehand when we have any changes to make and probably would take a man over from some other place.

E. T. Ladd, F.A.I.C., chief chemist, Isco Chemical Company:

I feel very strongly that we should not attempt to make this move and feel that there are many reasons for holding this point of view.

One of the chief reasons is that it would be difficult to get authentic information in regard to the abilities of individual chemists. There are many chemists who from day to day are so wrapped up in their work that they give others very little idea as to their ability. On the other hand, there is the type of individual who while he may have ability, would have no hesitancy in exaggerating if he attempted to describe his own qualities. Still others, through modesty, would never indulge in a description of any sort. If this is all true, it would make the facts published in such a catalog more or less valueless.

On the other hand, supposing that it were possible to get a very accurate picture of the abilities of all chemists, I cannot see that this would be of much advantage to the mass of chemists. Here and there an individual might profit by his good fortune in having some employer pick his name out of the hat as the one whom he would choose to employ.

It seems to me that the Institute should think first of serving the chemists and secondly of serving the employer. By this I do not mean that they should be disloyal in any way, but the Institute is formed for chemists and their betterment, and this purpose should be preserved.

In closing I can only say that I certainly would not want to be card-cataloged and have some one's picture of my abilities one of the chief features in allowing others to estimate my ability. If I could not sell myself to those I cared to try to interest, I would surely not want to fall back on any such listing as is suggested.

Edward Gudeman, F.A.I.C., consulting chemist:

I am radically against such action. In the first place the catalog is published annually, and so would only duplicate, with few additions, the membership list of say two or three chemical societies.

It would not help any chemist who is out of a job. No industrial concern that wants a chemist does not know where to find the man it wants.

It would open up a field for some concerns to approach men in the employ of similar concerns and steal them away: a racketeer's method of obtaining private information. As a rule this works out against the chemist involved, who innocently may be led astray.

I cannot agree with the "prominent American industrialist" who states that many chemists are in a "state of virtual slavery." A competent chemist if held in "virtual slavery" knows how to break the bonds that hold him, and will offer his services to some one else. I have also found that in nearly every case a legitimate employer will have no objection to his employees bettering themselves.

Often I have asked large industrial laboratories to give me the name of one or more of their chemists whom they believed competent to take some position, perhaps even with a competitor. Not only would they give me the name of an employee, but would even give him the privilege of referring to them.

I also call your attention to the Directory of the Chicago Section of the A.C.S. What better or more could you devise? Let all sections of the A.C.S. do likewise. Let the Institute do likewise. You have the name and short sketch of the chemist. Then you have him listed in the classified index: American Can Company, 25 names; educational institutions, from 1 to 65; Standard Oil Company of Indiana, 55 chemists, etc.

If all our chemical societies would do as the Chicago Section does annually you would have exactly what you propose for the Chemists' Catalog, with the additional advantage of a short outline of a chemist's age, education, and business career.

I would not use a Chemists' Catalog to place any men nor to obtain any men.

John M. Weiss, F.A.I.C., consulting chemist:

The editorial suggestion of a "Chemists' Catalog" to serve as a guide to prospective employers of chemists sounds impressive at first glance, but reflection leads me to the opinion that it would have little practical usefulness. Were all or most chemists individual workers or consultants, as is the case in the medical profession, such a catalog would be of extreme value.

As things are, most chemists are job-holders, and their mere listing would not induce employers to approach them when in need of men. The average employer would hesitate to make overtures to a man already employed, and doubly so if the man were connected with a competing firm. The Chemists' Catalog would just be another

unnecessary "Who's Who," and incomplete because the membership of the Institute includes only a fraction of the chemists.

There are agencies which can function in normal times to give an employed man the possibility of change if he desires it. The Bureau of Employment of The Chemists' Club has and does act in this capacity, and there are, in addition, other local and national agencies capable of serving in this connection. Only in exceptional cases will the job seek the man. Moreover, such agencies are able to operate so that all proceedings are confidential. The chemist who is wide awake can find means of changing without endangering present connections. Employers also often desire secrecy. They do not want to broadcast the information that they are interested in certain men unless they are sure that these men would be receptive to their overtures. In many cases, the employer's name must be kept entirely out of the picture until actual negotiations are initiated. The administration of a Chemists' Catalog so as to preserve the advantage of secrecy would entail the services of a special office staff, which at present at least the Institute cannot support.

The best insurance for the chemist is an active part in the affairs of the various technical organizations. It is largely by contact that personality and attainments are recognized. The man who is well and favorably known to his colleagues in science and industry usually has little trouble in changing his job if he desires to do so.

It might be a good idea to have available at Institute headquarters the general qualifications of its members. This record would be one of constant change in every way, and if published as suggested would have to be republished frequently in order to keep it up to date and make it of any use. I doubt if this expense could be justified. In any case, the Institute should be very careful not to guarantee in any way the records. They must be obtained from the statements of the individuals, and the modest men are inclined to understate their qualifications. Conversely, the braggart often claims to cover the earth. Experience has shown that information of this type, obtained from questionnaires, often gives a very unbalanced picture and is deceptive as a comparison of men. The accredited agency, on the other hand, can and does get references from sources indicated by the applicant, which usually presents a fairer idea of the qualifications than the statements of the individual.

M. G. Shepard, chief chemist, Naugatuck Chemical Company: I think the principal difficulty would be to keep such a catalog up

to date. Changes are taking place so rapidly (particularly within the last few years) that I am afraid the catalog would be out of date within a few months after publication and become quite useless as a reference book.

I doubt if much would be accomplished beyond what is already being done by the personnel departments of the universities, the Bureau of Employment of The Chemists' Club, etc.

William A. Hamor, F.A.I.C., assistant director, Mellon Institute of Industrial Research:

I am not in favor of the preparation and publication of a comprehensive directory such as the Chemists' Catalog described by you. A competent personnel manager or laboratory director can easily locate specialists to be considered for openings. Moreover, many companies would be opposed to the listing of the specialties of their chemical employees.

I think, however, that it would be a beneficial move for The American Institute of Chemists to issue a carefully prepared list of *investigated* unemployed chemists, all dependable, giving therein the professional qualifications of these men, and including also a classification of their specialties. Copies of this publication could be advantageously sent to all the leading personnel managers and laboratory directors of the United States.

It would likewise be useful to publish a directory of consultants and commercial laboratories, with a detailed list of the special facilities and staff experts of these organizations. Such a directory would be serviceable to industry as well as to the chemical profession.

G. E. Landt, chief chemist, Continental Diamond Fibre Company:

To an individual chemist, a Chemists' Catalog would undoubtedly be of some assistance. The usual procedure in securing a man for a specific field is, of course, to advertise. It is quite conceivable that this procedure is more desirable than that of consulting a directory and approaching men whose names are obtained therefrom by letter. This is especially true in fields where the relationship between competitors is such that they do not intrude on each other's men.

Such a directory would furthermore not be indicative of special predominance or qualities of the men contained therein. In other words, it would not be a means of leading me to a man of special qualifications.

From the viewpoint of the employer, for the reasons given above, the value would be questionable.

Leonard Wickenden, F.A.I.C., vice-president, Suchar Products Corporation:

Until industry as a whole can be organized in a less haphazard fashion that at present, I am in favor of any proposal which will tend to strengthen the position of the industrial chemist. In connection with the proposed catalog of chemists, however, I see certain problems to which at the time, no solutions suggest themselves.

In the first place, a catalog which circulated among chemists only would be of limited value. The chemists listed would be desirous of advertising their qualifications, not so much to their fellow (and possibly rival) workers, but to prospective employers. There is, therefore, the problem of getting the catalog into the hands of business executives and, having got it here, of persuading the executives to consult it.

In the second place, it is scarcely conceivable that the majority of chemists would consent to the publication of either the salaries they are earning or of those they are seeking; and yet the salary demanded by a chemist is frequently the determining factor in offering him employment. To take the example given in the December editorial, suppose I need a man to superintend the manufacture of sulphonated oils and I find fifty chemists listed as experts in this line. How am I to know which of the fifty would find my offer a promotion and which would be insulted at the smallness of the salary which it carried? Am I to write to all fifty of them?

I see no weighty objections to the proposed catalog. I see some advantages connected with it. But I find I need a little more persuasion before I am fully convinced that it will be of much help to the chemist struggling to improve his position.

Science in Retail Merchandising

By Ellery H. Harvey

The development of the testing laboratories of Montgomery Ward. The chemist and the physicist in a mail-order house.

AS NEARLY as the record discloses, chemical testing of foods and drugs began at Montgomery Ward & Company shortly after the passing of the Foods and Drugs Act of 1906, mention being made of it some time later in Catalog 82, issued in 1912. The demand from other departments for a similar service grew until in 1916 a staff big enough to cope with additional problems was provided.

While young in years, the founding of the laboratory marks an important step in the evolution of merchandising and even at such a relatively late date represented a departure in business methods that was unique. Old as chemistry and physics were as abstract sciences, and even as handmaidens to certain fundamental industries, Ward's pioneered the application of science to the solution of the multitudinous problems that arise in merchandising a huge variety of articles by mail. There is hardly a phase of this gigantic business the laboratory does not aid, directly or indirectly. Growing out of the test-tube type of chemistry originally practiced, has come an engineering department sufficiently equipped to turn out a thousand analyses a month and versatile enough to cope with problems varying from the amount of plating on a pin to the strength of construction of a ready-cut house.

Science to Ward's technical staff is not something apart from life but rather organized knowledge applied in one form or another to the solution of business, engineering, and economic problems. There should be no more need for a business man to justify consulting his chemist and

DETERMINING MILK FAT LEFT IN SKIM MILK AFTER EFFICIENCY TEST OF MONTGOMERY WARD AND COMPETITORS' SEPARATORS

engineer to avoid costly mistakes in the fabrication of his wares, than there is when he calls in the physician or lawyer. There is no more mystery to one than to the other. To be successful in any profession requires about the same attributes: thorough knowledge of subject matter, passion for hard work, aptitude for observation, patience to collect the data, regard for truth, and ability to interpret. In our case the latter makes the job unique because it involves a first-hand knowledge of the whole field of business. Recommendations must be grounded in common sense and have an eye to practicality that need not be stressed in some research. One cannot ignore the state of the art, the matter of economics, and the ability to produce an acceptable item of merchandise at a low cost.

In 1872 when A. Montgomery Ward originated the idea of buying by mail, the frontier had not closed. Roads were poor and transportation expensive and slow. Towns were scattered. Those living in rural communities were barred from wide selection, up-to-the-minute styles, and low prices, due to this isolation. What more natural than the convenience of shopping by mail—widest possible selections at any time of the day, and low cost—through the use of the printed word?

This type of merchandising, however, brought its own peculiar problems. Confidence was established by the guarantee of "satis-

faction or your money back." Under such a guarantee the catalog which was the only salesman, and a silent one at that, had to carry wide selections of fresh merchandise in attractive layouts, with accurate and informative descriptions. To do all these things and still stay competitive frequently presented a real problem.

The problem of prompt shipments and turnover must be balanced against the need for low inventories or possible omissions. The catalog selections which are made six months in advance of its distribution must anticipate style trends, and all contracts must be made with an eye to market fluctuations. The need for rapid handling of orders prompted the building of nine large plants in the United States strategically located to render in-today-out-today service. A person may take several weeks to decide to buy a particular thing; but once the decision is made, immediate delivery is expected.

In the meantime every one has become more urban-minded with the advent of radio, magazines, and newspapers. Small towns are numerous. Good roads and popular priced cars furnish the means and the increasing shopping urge furnishes the desire to see the article before purchasing. Retail stores are the answer to the need; and one branch of the business supplements the other in providing a complete service.

Organization of the Laboratories

The merchandise research department, reporting directly to the operating vice-president, consists of three major activities: analytical, merchandise comparison, and service auditing. This arrangement makes possible a well-rounded and balanced service that begins with the buyer and his problem of making wise selections, carries through with an analysis of competitive merchandise, catalog presentation and sales promotional plans, and ends with a scrutiny of customer service.

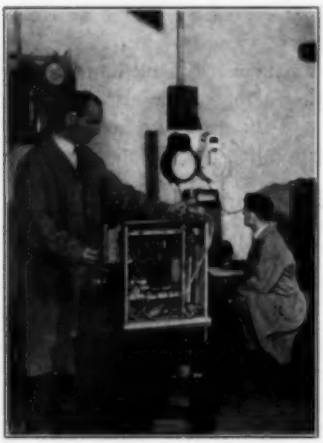
The analytical is divided broadly into three units: administrative, chemical analysis, and physical testing. No restrictions stand in the way of its use, and no argument is needed to justify its existence. The cost of operation is considered a general expense to encourage the use of its facilities.

The mechanics of getting a sample analyzed consists in sending it to the laboratory, accompanied by a request for analysis form in duplicate, indicating specifically what is desired. If something unusual is wanted the person originating the request usually discusses his problem with the laboratory director, and in most cases leaves the entire matter in our hands. The requests are dated and numbered as received, and each problem is assigned to the staff member best qualified to handle it.

This is done in order of receipt although exceptions are frequently necessary to meet catalog schedules or to make a train to a distant point. The duplicate copy of every report is filed by year and subject matter and the original copy goes to the person originating the request. These records now constitute an excellent background for comparative purposes.

Both Chemical and Physical Tests Necessary

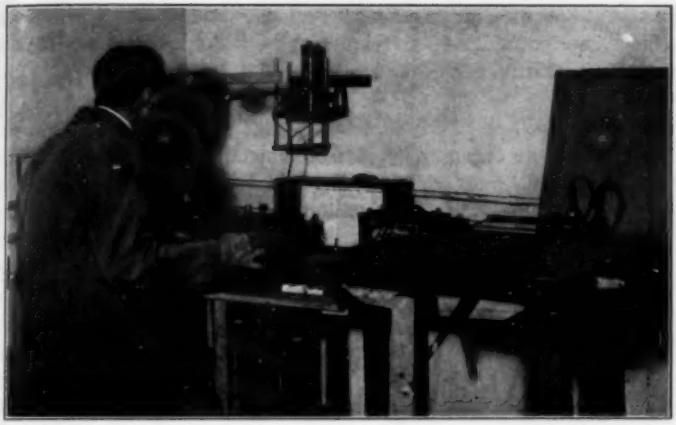
The chemical and physical testing staffs supplement each other, few requests for assistance being confined strictly to either one alone. Standard methods of analysis are employed whenever possible; but many, particularly in physical testing, must be developed, so that a machine shop is maintained for designing and building needed equipment. A good working library provides literature facilities in the field of fundamentals and applied science.



TESTING HEATING APPARATUS IN FIREPROOF ROOM

One room, set aside for textile analysis, is fully equipped to handle all requests for work in this field. The usual routine tests involve microscopic identification of fibers and type of weave, weight per square yard, thread count, tensile strength, tubfastness, sunfastness, shrinkage, and quantitative estimation of fibers. Where appropriate, tests are made for waterproofness, absorbency, metallic weighting, abrasion resistance, mothproofness, mildew resistance, twist of yarns, degree of mercerization, identification of dyes, flexing tests, per cent of sizing, hosiery analysis, and customers' complaints. What we call textile analysis involves such a variety of materials as underwear, hosiery, dresses, coats, suits, millinery, blankets, towels, typewriter ribbons, stationery, wall paper, floor coverings, drapes, window shades, notions, tents, oilcloth, upholstering.

In the chemical laboratory facilities are available for the analysis of items in the hardware division for hardness, carbon content, constituents, metallography, amount and quality of plating, tensile strength, and salt spray corrosion.



TESTING THE INSULATING VALUE OF BUILDING BOARD

The examination of paints, varnishes, and lacquers includes chemical analysis, weight per gallon, hiding power, viscosity, abrasion resistance, brushing qualities, drying time, artificial and roof weathering.

Foods and drugs occupy much of our attention. The organic chemists responsible for this work also include shoe polishes, floor waxes, inks, washing and cleaning compounds, bactericidal value of antiseptics, adhesives, fertilizers, insecticides.

The analysis of water, coal, lubricating oil, gas, roofing, and similar items are analyzed both for our own information in connection with supplies and for resale.

Separated from the chemical laboratory to minimize corrosion, noise, and vibration, the physical testing unit includes radio and electrical measurements, a fireproof room for fire-hazardous merchandise, a constant temperature room for refrigerator testing, a machine shop and a dark room for photomicrography, spectroscopy, and X-ray analysis, with miscellaneous equipment for tensile strength tests on rope, wire, leather, and compression tests on furniture, etc.; auto radiator efficiency measurements, mattress tester, chinaware impact, felt base rug abrasion machine, indentation apparatus, foot-candle meter, pyrometric equipment, etc.

Here cream separators are checked for skimming efficiency, incubators for ability to hatch large percentages of fertile eggs, gasoline engines and electric motors for horse-power ratings. Other tests are on dirt picking

capacity of vacuum cleaners, efficiency of washing machines, sewing machines, and dozens of household items which are tested for their satisfactory performance in the home.

Laboratory Aids the Buyer

The buyer in our organization is the man who contacts the markets for merchandise in his line, selecting for resale those items for which a demand exists, taking into consideration quality, price, distribution, and delivery. In essence, the buyer is a full-fledged merchant, specializing in certain lines, such as sporting goods, luggage, or paint, in which he must give due regard to catalog arrangement, publicity expense, and inventory control. The buying organization of a mail-order house is in essence, therefore, an aggregation of merchants, each one an expert in his field.

As the buyer contacts his sources of supply, he is under the same barrage of high-pressure selling even as you and I when we function as ultimate consumers. Facts developed by the laboratory act as a common denominator in reducing all this sales talk to something definite and tangible. Capable as any buyer may be, most of the points of major importance from a quality standpoint cannot be determined by mere inspection. A carefully considered report from unbiased laboratory experts who interpret their data in the light of consumer needs, special guarantees, and competition makes it possible for the buyer to make his contacts with confidence, and in addition releases a tremendous amount of time for other work. In effect the laboratory staff are merchandise counselors to the buying organization.

In any such program obviously the matter of specifications is given great consideration. It is the very essence of the mass production, mass distribution, mass consumption idea.

Aid to the Operating Department

Only part of the job is done after merchandise is analyzed, selected, and bought. Each incoming shipment must be checked to determine whether purchasing specifications have been satisfactorily met. Items rejected by the laboratory are returned to the manufacturers for credit. Obviously there is but little comfort in such a picture for the manufacturer who knowingly or unwittingly permits a substantial variation of quality or quantity to occur in his product.

Incidental to the operation of a business involving nine mail-order plants and five hundred retail stores there are innumerable problems, many of which are referred to the laboratory. "Maximum service with

minimum expense" is the keynote which makes it possible for us to aid the purchasing department buy better coal, fuel oil, paper, twine, ink, adhesives, soaps, disinfectants, paint, varnish, floor oils and waxes, shipping cartons, etc.

Complaints of a technical nature are referred to us. This makes possible direct customer contact which is mutually helpful; the inquiry receives a prompt and intelligent reply on the one hand and we learn some of the things that bother the ultimate consumer.

CLOTH ABRASION TEST

Then there are many who write direct for help in connection with some problem of the home or farm. Among recent inquiries were included queries as to the hardness of water, economic value of a mineral that was found locally, tannage of small skins, value of ultra-violet lamps, type of fertilizer for onions, information on weighted silks, determination of wool in a fabric.

The preparation of instructional literature occupies a part of our time. We are anxious that the merchandise perform satisfactorily and economically; hence, care is taken to indicate proper conditions of use. This involves unpacking, assembling, and actual operation. This activity brings weaknesses to our attention if there are any and helps to eliminate returns.

To keep a balanced point of view staff members, chosen because of their background, look at our prices, merchandise, and service from the customer viewpoint. This group, known as service auditors, is constantly checking, comparing, and criticizing. Their reports are based on actual conditions of the stock and after the receipt of test orders sent out without the knowledge of those who fill the order.

Merchandise Comparisons

To know what competition is doing is almost as important as knowing your own objectives. The company sets for itself the goal of selling the best merchandise obtainable at the price at which it is sold. A constant stream of nationally advertised washing machines, vacuum cleaners.

cream separators, gasoline engines, electric motors, incubators, harness, fencing, roofing, paints (just to mention typical examples) pass through the laboratory for a point-by-point comparison with our own. The result of some of this work finds its way into the hands of the buyer and manufacturer, so that weak lines may be strengthened; some of it is utilized by the sales manager in planning his selling campaign. The advertising department leans heavily on such reports in the preparation of copy.

These comparisons include a detailed analysis of retail and mail-order selling with respect to assortment, price lines, eye appeal, ease of ordering, layouts, space allotment, feature presentation, exclusive features, collateral advertising, and service. In a very real way, therefore, the entire organization is assisted by a scientific approach to every problem of a merchandising nature.

Legal Requirements Must Be Considered

The local merchant on intra-state shipments has at most only the legal requirements of his state to watch, and in the larger cities, the activities of the Better Business Bureau. The mail-order house on the contrary must meet the legal requirements of forty-eight states and of the Federal Government as well.

Labels, both on nationally advertised items and those put on the market under our own name, receive careful attention. We pass upon the agreement of label claims and actual composition, compliance with the requirements of the Food and Drug Act, Caustic Poison Law, Postal Regulations, and suitability of a particular product for an intended use. Special requirements of certain states with respect to bedding, paints, etc., are carefully followed.

Rules promulgated for the guidance of the advertising department have their basis in the case law and stipulations issued by the Federal Trade Commission. This is the agency set up by Congress to prevent unfair competition in interstate trade. It does not take jurisdiction over intra-state business and for that reason the national distributor is frequently at a very serious disadvantage in selling in competition with the local merchant. Consumer education is the hope of the ethical merchant. The latter awaits the day when the customer will know how to buy intelligently and to differentiate between the true and the false in advertising.

It would be financial suicide for a house doing business with about ten million mail-order customers to describe its wares in other than an honest manner. Immediate profit performance would be injured due to

CORNER OF MONTGOMERY WARD CHEMICAL LABORATORY

a return of the misdescribed merchandise, and future profits made impossible through loss of good will. Accuracy is assured in a number of ways.

First, the copywriter has the item before him as he prepares his advertising. This is supplemented by technical and merchandise comparison reports from us. The editorial department, which works very close to the laboratory, checks the proof for inaccuracies. Finally, feature pages are scrutinized again by the laboratory, in most cases the basis of the feature presentation being a laboratory report.

Sales Promotion

Important as checking and controlling the work of others is, there is a creative side to science as applied to merchandising that is just being realized. At Ward's, the sales manager recently turned at the conference table to the laboratory director and said, "The buyer tells me he has been offered a new source on golf balls the manufacturer insists are unusual quality. Do you know anything about them?"

"Anticipating such a request," said the laboratory director, "on our own initiative we compared this ball several weeks ago with eight nationally advertised balls. Here are data and photographs to show this ball, while lower in price, has a tougher balata cover as shown by the

guillotine, a truly spherical center as revealed by the X-ray, and greater flight in yards by the mechanical driver."

Those who have read this far must have concluded that to receive part of Ward's business means well-managed companies with a national distribution, financial strength, and capable of mass production. In no other way can adequate stocks be maintained at all points of distribution without excessive inventories. Such a plan gives the manufacturer an idea of what his production must be for six months, the life of a catalog, and at the same time gives him a flexible merchandising plan. If he sells under his own name and has a dealer organization, obviously he cannot sell to Ward's for less without competing with himself. This works to the advantage of Ward's customers. Such items, identical in every respect except the name-plate, are distributed to mail-order customers at prices substantially lower than the advertised article.

Development Work Also Carried Out

There are many times when, with our ear so close to consumer trend, we feel the need of something different, either in price, design, or type. If nothing suitable is found available on the market, or the idea has unusual possibilities, that part of our staff of engineers and machinists whose job it is to work out the details will develop the plans for manufacture. In such a manner has been born an unusually good low-priced washer, a vacuum cleaner, a new all-steel farm wagon, an absorption type refrigerator of conventional design to retail below $100, a low-priced electric churn, etc. And for one entirely new development there are hundreds of constructive suggestions going back to manufacturers for modifications and improvements in design, material, and workmanship.

With such a variety of work that is unique, methods of analysis must be originated. A machine shop is maintained as an integral part of the department for building instruments, making modifications of apparatus and to maintain the standard testing devices at a high state of efficiency. Experience teaches us it is one of the most helpful units in the department.

Some pure research in chemistry and physics is also necessary. Gaps in the literature are rapidly filling up so that the standard handbooks can be turned to with increasing confidence, but much data remains to be collected on natural products.

The Need for Licensing

By Frederick Kenney

Are the objections to licensing valid? The state machinery for licensing other professions. Why not protect chemists and the public?

I AM deeply interested in the licensing of chemists and I believe it the most effective way to place the profession of chemistry where it properly belongs. The American Institute of Chemists is the organization which should foster and develop the movement to attain this objective.

I have read with considerable interest the comments which appeared in the December issue of THE CHEMIST; and I should like to bring out a few points mentioned by the negative commenters. These men have no doubt expressed their honest convictions; but the majority of them are in an academic atmosphere and have comparatively little contact with the public, either directly or through industry.

The objector who points out that a license would not qualify a chemist to do honest scientific work and that a political body cannot confer professional ability is far afield as to the purposes of licensing and has failed to grasp the fundamentals of the subject. This is also true of the suggestion that licensing might be mixed with municipal, state, or federal politics.

Do these men intimate that the professions of law, medicine, architecture, dentistry, and pharmacy are subjecting their young graduates to political licensing boards? To have even a passing thought of this sort indicates a complete lack of knowledge as to how these boards are appointed and operate.

It might be well to outline the manner in which New York State

conducts the licensing of professional men and women. Under the State Education Law all these matters are subject to the rules of the Board of Regents and to the regulations of the Commissioner of Education. The Assistant Commissioner for Higher and Professional Education is in charge of universities, colleges, professional and technical schools, and of the execution of the laws concerning the professions.

For each profession recognized by the state there is a state board of examiners who are appointed by and hold office during the pleasure of the regents, and who, subject to the approval and to the rules of the State Education Department, make rules for examination and registration. The qualifications for membership on this board are specifically stated in the act covering the professions; and while they are not all similar, the requirements are all very rigid. It is therefore up to the profession itself to see that the act governing them is formed along lines which they deem essential to maintaining high standards.

THE general impression of the negative commenters is that only a small percentage of chemists are in contact with the public. To this I reply that some of them have been too busy in laboratories for the past decade to recognize the changes that have taken place. Before the war the majority of men and women pursuing the profession of chemistry were in the academic field, but I do not believe this is true today. During the past fifteen years industry has come into chemistry and has brought the chemist directly into contact with the public by commercializing his efforts for the comfort, convenience, and health of mankind. The time therefore has arrived when the profession owes a duty to the public to develop definite minimum standards.

The public have been educated to the wonders of the science of chemistry, but are totally in the dark as to the training necessary to pursue the profession of chemistry. It should be apparent to any man of broad vision that the public ignorance in this respect has a deleterious effect on the profession. Every individual, group, or profession must have the good opinion of the public in order to sustain its dignity and prestige.

The academic group will probably give this thought little consideration; but their negative attitude is due to the fact that they maintain their dignity and prestige because of their titles as members of a faculty. They are satisfied with that; and I have heard that many of them feel they belong to the educational group rather than to the chemical group.

Research directors may likewise belittle this thought; but they, too, are in a more or less highly specialized group governed by the rigid

regulations of their corporations, and they may have some timidity about losing their prerogatives. Many research directors, because of the size of their corporations, are able through personnel officers to put a candidate through examinations to determine his fitness for employment with them. This is an excellent procedure and serves a useful purpose. Why, therefore, should they object to a similar standardized and officially recognized procedure for the benefit of every one who desires to employ a chemist?

Such a standardized procedure would not in any way keep corporations from continuing their present methods of selecting employees. It would merely insure technical and professional training and experience and make ethical conduct a potent factor in chemists' dealings with their fellow men. The need for control of professional ethics is recognized by large employers through certain paragraphs of their employment contracts.

There are many more points that could be mentioned supporting the need for state recognition of chemists as professional men; but the one important thing necessary is for the chemist to cease being selfish. He should not confine his thoughts to the four walls of his own laboratory, but expand and evaluate them in terms of the relationship of his profession to the public and other professions.

BY-PRODUCTS

Shall We Abandon Research?

CHEMISTS are peculiarly interested in the future policies of society at large respecting scientific research. No member of our profession will remain unaffected by the decisions reached by those responsible for the support of this activity. In a period such as the present, when rigorous retrenchment is imperative if society is to survive, every activity that involves expense is being carefully appraised to determine its dispensability. Any project that cannot defend itself is in danger of suspension. Frank superfluities are being daily discontinued, luxuries are being reluctantly abandoned, conveniences, even, are being surrendered. The community is in the predicament of a storm-blasted schooner in the grip of a berserk sea. Every dispensable object must go overboard to lighten the ship lest the overburdened craft meet disaster.

Research activities must vindicate their right to continuance. There is, of course, no need for us to develop here a brief for research. Chemists recognize fully the vital necessity for continuation of scientific investigation even during the darkest hours. Aside from other arguments, adding fifty thousand trained men to the bread line will not improve the general situation.

But it occurred to us the other day while we were pondering the national situation that there is one line of defense that has not been employed so often and so completely as it merits. Research has usually been justified by reference to the cultural and economic advances it has made possible. While this is a strong argument it cannot repulse an attack based upon the idea of suspending research during the crisis on the grounds that we cannot afford cultural and economic advances at the present time.

The other argument to which we referred is founded upon the concept of research as insurance, as protection against political and industrial failure. Even under the straitened circumstances of these times, none of us gives up his insurance policies while he can somehow raise the premiums. Research from one point of view is insurance. In industry it enables the progressive manufacturer to meet competition that otherwise might drive him from the market. In government,

among numerous other examples, it enables the army and navy to be prepared for defense against new types of attack. In political life it insures a country against decadence, against the handicap of meeting, with antiquated tools, methods, products, and ideas, the competition of progressive nations that have utilized their scientific resources.

A development of this argument added to the more common arguments for a continuation of research ought to result in a broader appeal and in support from quarters that are now indifferent if not hostile.

To abandon research implies the desertion of a principle upon which is based the political, industrial, and cultural future of the American people. No generation of Americans has been willing to consider such action.

Homo Sapiens

THE family *Hominidae* of the order primates appears to be the acme of the biologist's ideals. Having dumped all of mankind into this pigeonhole, his only difficulty is to keep him there. Man insists upon climbing out and stretching his wings in defiance of the biologist's assurance that he hasn't any wings.

They Say

"THE University, as distinct from the technological school, has no proper function other than to teach that the flower of vital energy is Thought, and that not Instinct but Intellect is the highest power of a supernatural Will—an ultimate, independent, self-producing, self-sustaining, incorruptible solvent of all earlier or lower energies, and incapable of degradation or dissolution.

"The contradiction between science and instinct is so radical that, though science proves twenty times over, by every method of demonstration known to it, that man is a thermodynamic mechanism, instinct would reject the proof, and whenever it should be convinced, it would have to die."—HENRY ADAMS, "The Tendency of History."

—*The Autocratic Chemist*

OUR AUTHORS

Comment on Licensing

Frederick Kenney, F.A.I.C., heads the Department of Purchase Laboratories of New York City. He brings to the present discussion his own long professional experience and in addition the special knowledge he gained while a member of the Institute committee on licensing.

A past chairman of the New York Chapter of the Institute and a member of the present national council, Mr. Kenney is also active in other chemical organizations—notably, The Chemists' Club, of which he is a trustee.

Formerly an enthusiastic tennis player, Mr. Kenney now concentrates on golf, so successfully that he is golf champion of The Chemists' Club. His chief other hobby is bridge.

Science in Retail Merchandising

Ellery H. Harvey, director of Montgomery Ward's merchandise research department, has had unusually broad training—in pharmacy, chemistry, engineering, and law, in the course of which studies he earned a long string of degrees: Ph.C., Ph.M., A.B., A.M., Ph.D., Ch.E., J.D. His practical experience in these fields has been extensive from the control, research, and executive points of view.

Dr. Harvey is a member of numerous scientific and business associations, has done considerable writing and editing, and is the patentee of several important inventions. In religion and politics he is independent. His hobby is motoring.

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National Council

The ninety-eighth meeting of the Council of The American Institute of Chemists was held at The Chemists' Club, 52 East 41st Street, New York, N. Y., on Thursday, January 19, 1933. President Henry G. Knight presided, and the following councilors and officers were present: Messrs. Breithut, Brooks, Crossley, Jackson, Mehring, Moody, Neiman, Zons. Mr. E. L. Gordy, editor of THE CHEMIST, was also present.

In the absence of the Treasurer, the Secretary submitted the Treasurer's report.

Mr. Gordy submitted a report on THE CHEMIST.

A number of nominations were made for the Institute Medal and for the council vacancies to be filled at the annual meeting. These nominations were referred to the proper committees.

The Secretary presented a letter from Mr. Karl M. Herstein suggesting that every qualified chemist who is unemployed be permitted membership in the Institute without the payment of any dues. It was the consensus of those present that it would be unwise to admit unemployed members as suggested by Mr. Herstein, and that the Council will be pleased to act upon the question of the dues of any unemployed member.

The Secretary presented letters from Michael Frederick, Kenneth G. Chesley, and Sidney P. Armsby to the effect that they were out of positions, and it was directed that note of this be made in THE CHEMIST.

Dr. Crossley requested that a copy of the letter of Kenneth G. Chesley and a copy of his record be forwarded to him.

Upon motion made and seconded, William H. Walker, 1669 Lombardy Road, Pasadena, California, was elected to honorary membership.

The Secretary presented a letter from C. E. Senseman, Secretary of the Washington Chapter, stating that the Chapter had given its unqualified approval of Mr. Mehring's letter of December 27, 1932; and the Secretary was directed to write the Washington Chapter to the effect that the Council is in sympathy with their letter, and that the Institute offered its services to the Shannon Committee with the idea of protecting the chemist, but that it is not considered advisable to carry the matter any further at the present time.

HOWARD S. NEIMAN, *Secretary*

Proposals to amend the Constitution of the Institute must be submitted in writing to the Secretary of the Institute on or before March 18, 1933, and must be proposed by ten or more Fellows of the Institute in good standing.

New York Chapter

The January meeting of the chapter was held at The Chemists' Club on Friday, January 13th. Following the dinner, the meeting was opened by Dr. D. D. Jackson, chairman of the chapter. He introduced Dr. Stroud Jordan, managing director of the Applied Sugar Laboratories, Inc., who delivered an address entitled, "The Chemist in Confectionery Manufacturing."

Dr. Jordan made a splendid presentation of the problems confronting the industry, and pleaded for better understanding and cooperation on the part of professional chemists. He briefly outlined the applications of chemistry to the control of raw materials, finished products, and fundamental processes employed in confectionery manufacture, and stressed the important need for standardization and professional methods.

Dr. Jordan believes that chemists are better fitted than other professionally trained persons to cope with the problems of the confectionery industry, but that they should use their knowledge of chemistry merely as a means to an end. Of the relatively few chemists who have been employed by the industry, some have been released; and Dr. Jordan laid this seeming lack of appreciation on the part of manufacturers to the chemists' own unfortunate tendency to hold themselves aloof in laboratories "looking out the window through a test-tube" instead of going out into the plants where they can acquire a more intimate and practical knowledge of what the plant men really need and want to know.

Among those who discussed Dr. Jordan's paper were Robert Schwarz, R. J. Moore, H. O. Chute, and J. F. X. Harold.

Washington Chapter

The January meeting of the Washington Chapter of The American Institute of Chemists was held January 13, 1933, in the Board room of the Cosmos Club. Mr. Martin T. Fisher, local patent attorney, spoke on the subject, "Patents for Chemists."

A report from the committee investigating the attack on government research was given by Dr. Couch, followed by an open discussion of the situation.

J. B. MARTIN,
Reporter

New Members

The following members were elected at a meeting of the National Council held on January 19th.

FELLOWS

JOSEPH WILLIAMS AYERS, *Director of Research*, C. K. Williams & Company, 640 North Thirteenth Street, Easton, Pa.

BESSIE E. BUTCHER, *Head, Science Department*, Eagle Rock High School, Los Angeles, Calif.

THOMAS W. DAVIS, *Instructor in Chemistry*, New York University, University Heights, New York, N. Y.

WALTER ARTHUR DEW, *Assistant Director*, Burnside Laboratory, E. I. du Pont de Nemours & Co., Carney's Point, N. J.

GABRIEL A. LOWENSTEIN, *Scientific Director*, Wil-Low Cafeteria, Inc., 624 First Avenue, New York, N. Y.

WILLIAM ALVAH SMITH, *Manager*, Gasoline and Oil Departments, Larkin Co., Inc., 680 Seneca Street, Buffalo, N. Y.

ASSOCIATE

FRANKLIN H. BIVINS, *Vice-president*, Foster D. Snell, Inc., 130 Clinton Street, Brooklyn, N. Y.

Applications for Membership

FELLOWS

E. H. BUCY, *Vice-president and Director of Research*, Brevolite Lacquer Co., North Chicago, Ill.

C. MAURICE CONNOR, *Chemist*, Glassine Paper Company, West Conshohocken, Pa.

LLOYD C. DANIELS, *Assistant Technical Director*, The Selden Company, McCartney Street, West End, Pittsburgh, Pa.

DONALD E. EDGAR, *Research Chemist*, E. I. du Pont de Nemours & Co., Parlin, N. J.

ROBERT CRAIG ERNST, *Associate Professor*, Speed Scientific School, University of Louisville, Lousiville, Ky.

STUART KABNICK, *Research Chemist*, Biochemical Laboratories, 1410 Spruce Street, Philadelphia, Pa.

CHARLES GLEN KING, *Professor*, University of Pittsburgh, Pittsburgh, Pa.

CHARLES W. MACFARLANE, *Consulting Chemist*, Oaks, Montgomery County, Pennsylvania.

EARLE CARVER PITMAN, *Assistant Director*, Parlin Laboratory, E. I. du Pont de Nemours & Co., Parlin, N. J.

ASSOCIATES

WILLIAM B. BROWN, *Research Chemist*, Lucidol Corporation, 293 Larkin Street, Buffalo, N. Y.

LOTHIAN M. BURGESS, *Chemist*, Pilot Chemical Corporation, Box 96, Carlstadt, N. J.

EVANGELINE F. DECKERT, *Research Chemist*, Reed and Carnrick, 155 Van Wagenen Avenue, Jersey City, N. J.

DONALD MASON ROCKWELL, *Teacher*, Juniata College, Huntingdon, Pa.

JUNIORS

ELEANOR F. BASSETT, *Assistant Chemist*, Board of Health Laboratory, City of New Orleans, La.

ELIZABETH M. MULHALL, *Research Chemist and Physiologist*, Reed and Carnrick, 157 Van Wagenen Avenue, Jersey City, N. J.

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